

Gadolinium embedded iron oxide nanoclusters as T1-T2 dual-modal MRI-visible vectors for safe and efficient siRNA delivery

Xiaoyong Wang^{a#}, Zijian Zhou^{a,b#}, Zhiyong Wang^d, Yunxin Xue^a, Yun Zeng^a, Jinhao Gao^{a,b}, Lei Zhu^a, Xianzhong Zhang^a, Gang Liu^{a,c*}, Xiaoyuan Chen^{e*}

^a Center for Molecular Imaging and Translational Medicine, School of Public Health, Xiamen University, Xiamen, Fujian, 361102, China

^b State Key Laboratory of Physical Chemistry of Solid Surfaces, The Key Laboratory for Chemical Biology of Fujian Province and Department of Chemical Biology College of Chemistry and Chemical Engineering Xiamen University, Xiamen 361005, China

^c State Key Laboratory of Cellular Stress Biology, School of Life Sciences, Xiamen University, Xiamen, 361005, China

^d Paul C. Lauterbur Research Center for Biomedical Imaging, Institute of Biomedical and Health Engineering, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen 518055, China

^e Laboratory of Molecular Imaging and Nanomedicine (LOMIN), National Institute of Biomedical Imaging and Bioengineering (NIBIB), National Institutes of Health (NIH), Bethesda, MD 20892, USA

These two authors contributed equally

* Corresponding author

Gang Liu; Center for Molecular Imaging and Translational Medicine, School of Public Health, Xiamen University, Xiamen, Fujian, 361002, China. Email: gangliu.cmitm@xmu.edu.cn

Or

Xiaoyuan Chen; Laboratory of Molecular Imaging and Nanomedicine, National Institute of Biomedical Imaging and Bioengineering, National Institutes of Health, 31 Center Dr, 1C22, Bethesda, MD 20892-2281. E-mail: shawn.chen@nih.gov

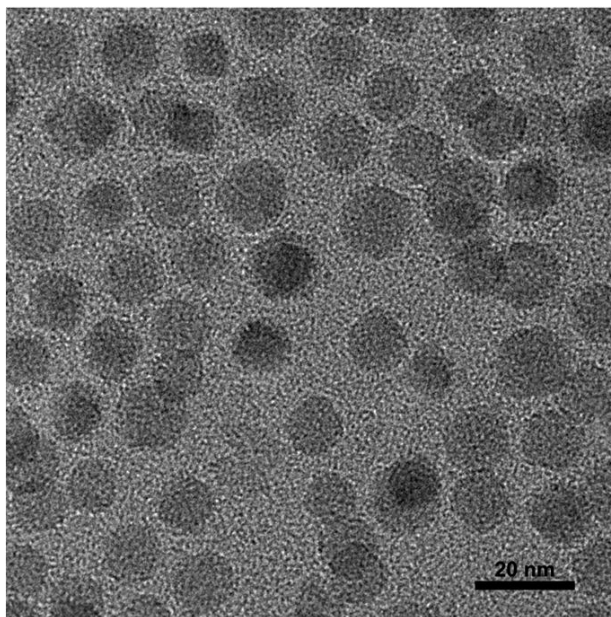


Fig. S1 TEM images of the synthesized GdIO nanoparticles.

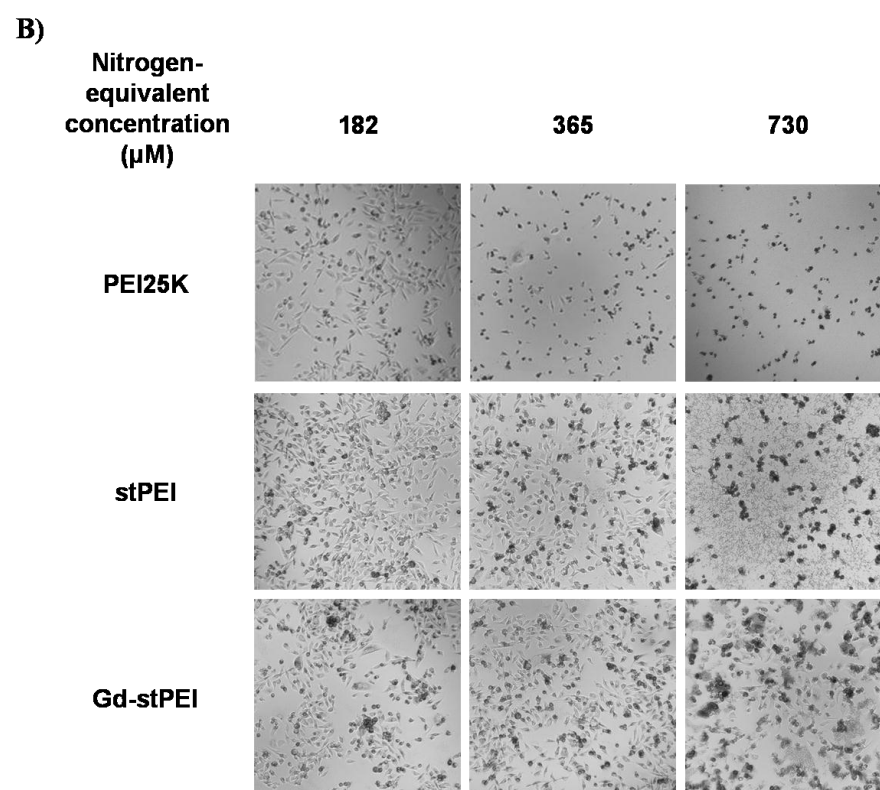
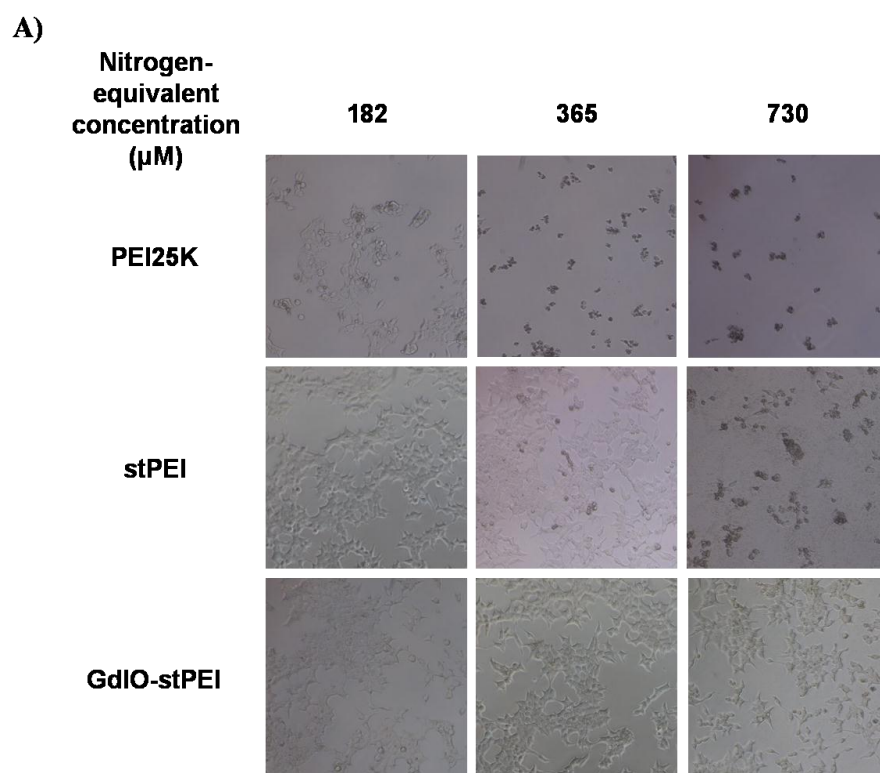


Fig. S2 Comparison of cytotoxicity of GdIO-stPEI/siRNA, stPEI/siRNA and PEI25K/siRNA complexes at the N/P ratio of 60. PEI25K induced 293T (A) and PC-3 (B) cell contraction and then death, while cells exposed to GdIO-stPEI and stPEI remained viable and intact cell morphology.